REMARKS

The Office examined claims 1-34 and rejected same. With this paper, various of the claims are amended, none are canceled, and no new claims are added, so that claims 1-34 remain in the application.

This paper also corrects two obvious errors in the disclosure.

Objections to the specification

At section 2 of the Office action, the abstract is objected to. With this paper, the abstract is changed in a way believed to obviate the grounds for the objections.

Objections to the claims

At section 3 of the Office action, the claims are objected to. With this paper, the claims are changed in a way believed to obviate the grounds for the objections.

Rejections under 35 USC §102

At section 4 of the Office action, claims 1-6, 9-14, 16-22, 25-30 and 32 are rejected under 35 USC §102 as being anticipated by U.S. Pat. No. 5,511,096 to Huang *et al.*

Regarding claims 1 and 17 (to coding, as opposed to decoding), each recite (as a step of or means for) providing a plurality of sequences of bits using a convolutional encoder, in response to a sequence of input bits, each sequence of bits being defined by a predetermined generator polynomial having a predetermined level of sensitivity to puncturing; and mapping the bits of each sequence of bits to symbol positions based on the level of sensitivity of the generator polynomial defining the sequence of bits. Applicant respectfully submits that Huang

nowhere discloses mapping the bits of a sequence of bits to symbol positions based on the level of sensitivity of a generator polynomial defining the sequence of bits, even though the Office action seemingly asserts that mapper 50 of Huang performs such a step. The mapper 50 is discussed only beginning at col. 8, line 61, to col. 9, line 23. It is described as mapping bits provided by convolutional encoder 48 (which punctures at some predetermined rate) to symbols (i.e. it is part of the modulator). There is, however, simply no teaching of mapping bits of a sequence of bits to symbol positions based on the level of sensitivity of a generator polynomial defining the sequence of bits, as claimed. Huang teaches the use of interleaving in Reed-Solomon (linear block) coding to combat burst errors, as explained at col. 8, ll. 14-15. As set out in the application at page 3, ll. 12-20,

> According to the prior art, ... the same kind of interleaving is typically used regardless of the modulation scheme. But when using modulation schemes where the error probability for each bit within a symbol is not even, the interleaving procedure should be adapted to take into account the uneven bit error rate.
>
> One situation where the need to take into account the uneven bit error rate is relevant is in a system using 8-PSK modulation (or any multi-level modulation scheme).

Thus, the invention provides an adaptation of prior art coding and modulation, namely mapping bits of a sequence of bits to symbol positions based on the level of sensitivity of a generator polynomial defining the sequence of bits. The cited art teaches no such adaptation.

Regarding claims 2 and 18 (to decoding, as opposed to coding, and which claim the inverse of what is claimed in claims 1 and 17), each recite that in response to received symbols, a step is performed (or means for performing is provided) of demapping the symbols back to a plurality of sequences of bits, each sequence of bits being defined by a predetermined generator

polynomial having a predetermined level of sensitivity to puncturing, the demapping based on the level of sensitivity of a generator polynomial defining a respective one of the sequences of bits. Huang nowhere discloses the recited demapping, which would be performed only if there were a mapping as recited in claims 1 and 17. The Office action, however, seemingly asserts that decoder 32 of Huang performs the recited demapping. Applicant respectfully points out that decoder 32 is a trellis decoder that uses a soft-decision convolutional decoding algorithm to recover transmitted information, as explained at col. 8, line 51. It is further described, in connection with Fig. 3, at col. 9, ll. 25-41, where it is explained as using a prior art Viterbi decoder:

> For each five bits output on line 66 to a rate 4/5 16-state Viterbi decoder 68, four decoded bits are provided at the output of the Viterbi decoder. The conditional determinations of the uncoded bits are output on line 64. The Viterbi decoder 68 can be a rate 1/2 decoder that is punctured to rate 4/5 using well known puncture techniques … .

There is simply no teaching of demapping symbols back to a plurality of sequences of bits, each sequence of bits being defined by a predetermined generator polynomial having a predetermined level of sensitivity to puncturing, the demapping based on the level of sensitivity of a generator polynomial defining a respective one of the sequences of bits.

Accordingly, applicant respectfully requests that the rejections of claims 1, 2, 17 and 18 under 35 USC §102 be reconsidered and withdrawn. Also, since the other claims rejected under 25 USC section 102 all depend from one or another of claims 1, 2, 17 and 18, applicant submits that they also are allowable over the cited art and respectfully requests that there rejections also be reconsidered and withdrawn.

Rejections under 35 USC §103

At section 5 of the Office action, the other claims of the application, namely claims 7, 8, 15, 23, 24, 31, 33 and 34, are rejected under 35 USC §103 as being unpatentable over U.S. Pat. Huang.

On at least the ground that each of the claims rejected under 35 USC section 103 depends from one or another of claims 1, 2, 17 or 18, all of which are believed allowable over Huang for the reasons given above, applicant respectfully requests that the rejections under 35 USC §103 be withdrawn.

Conclusion

For all the foregoing reasons it is believed that all of the claims of the application are in condition for allowance and their passage to issue is earnestly solicited. Applicant's attorney urges the Examiner to call to discuss the present response if anything in the present response is unclear or unpersuasive.

Respectfully submitted,

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